

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference I13397WO-H	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/01858	International filing date (day/month/year) 15/05/2000	Priority date (day/month/year) 14/05/1999
International Patent Classification (IPC) or national classification and IPC G03B21/62		
Applicant MICROSHARP CORPORATION LIMITED et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.



2. This REPORT consists of a total of 7 sheets, including this cover sheet.

- ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 11/12/2000	Date of completion of this report 12.07.2001
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer Piedrafita, A Telephone No. +49 89 2399 2639 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/GB00/01858

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1-19 as originally filed

Claims, No.:

1-27 as originally filed

Drawings, sheets:

1/5-5/5 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

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☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):
(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
☐ paid additional fees.
☐ paid additional fees under protest.
☒ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- ☐ complied with.
☒ not complied with for the following reasons:
see separate sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☒ all parts.
☐ the parts relating to claims Nos. .

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	2,4,6-9,14,15,17-20,22-27
	No:	Claims	1,3,5,10-13,16,21
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-27

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Industrial applicability (IA) Yes: Claims 1-27
 No: Claims

2. Citations and explanations
 see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:
see separate sheet

Section IV

1. The following separate groups of inventions are identified in the claims:
 - 1.1 Independent claims 1 and 3, and dependent claims 2, 4 to 9 are basically concerned with an optical plate consisting of first and second light transmitting bodies separated by a stepped interface provided with semi-reflective means.
 - 1.2 Independent claim 10 and dependent claims 11 to 15 are concerned with an LCD having a textured surface to eliminate or reduce reflections.
 - 1.3 Independent claim 16, and dependent claims 17 to 20 are concerned with an optical plate, one of the surfaces of which is provided with a Fresnel structure whereas the other one has a texturing to reduce reflection.
 - 1.4 Independent claim 21 and dependent claims 22 to 27 are concerned with an optical plate, one of the surfaces of which is provided with a Fresnel structure whereas the other one has an array of graded refractive index structures which impart light diffusing characteristics.
2. The only common concept existing between the subject-matter of the groups of inventions, consists of the use of an optical surface provided with some kind of structure, which concept cannot be considered novel since any optical plate which is not fully transparent (e.g. a frosted glass) would automatically fulfil this condition. Therefore the requisite unity of invention (Rule 13.1 PCT) does not exist.

Section V

1. Reference is made to

D1: EP-A-0 573 905 (MINNESOTA MINING & MFG) 15 December 1993 (1993-12-15)
D2: PATENT ABSTRACTS OF JAPAN vol. 006, no. 179 (P-142), 14 September

1982 (1982-09-14) & JP 57 094740 A (MATSUSHITA ELECTRIC IND CO LTD),
12 June 1982 (1982-06-12)

D3: US-A-5 442 482 (JOHNSON WILLIAM N H ET AL) 15 August 1995 (1995-08-15)

D4: US-A-5 751 387 (FUKUHARA MOTOHIKO ET AL) 12 May 1998 (1998-05-12)

2. D1 is generally concerned with a retro-reflecting polarizer used in connection with an overhead projector. Such a polarizer (see figures 1 to 3, ref. sign 10) includes two optical bodies (12 and 14), separated by a stepped interface provided with a semireflecting coating (see multilayered structure 16). All the features of independent **claim 1** are thus disclosed by D1. The subject-matter of claim 1 does not fulfill the requirements of Article 33(2) PCT.
3. D2 is concerned with a transmission screen comprising a first body (see the English abstract and the figure, reference sign 10) having an inner stepped surface including projections (8) of triangular section conforming with a second body of transmitting material (1) having an inner surface conforming the stepped surface of the first body, the refractive index of the first body being different from the refractive index of the second body for the purpose of causing light incident on the triangular projections to be totally reflected on one side of the triangular projections and then transmitted (and automatically refracted) through the other side of the triangular projections. D2 discloses all the features of independent **claim 3**. The subject-matter of claim 3 does not fulfill the requirements of Article 33(2) PCT either.
4. The scope of independent **claim 10** is so broad that any existing liquid crystal display device, the frontal surface of which exhibits the usual matted aspect for the purpose of avoiding direct reflections, anticipates its subject-matter. Therefore, independent claim 10 does not fulfil the requirements of Article 33(2) PCT either.
5. Independent **claim 16** merely relates to plate, one of which sides is provided with a Fresnel lens structure whereas the other one is provided with a relief texturing plate. This subject-matter is anticipated by most of the focusing screens used in connection with photographic cameras and which consist of a Fresnel lens structure associated to a frosted surface. Although the purpose of the textured surface of the

focusing screens is not to reduce reflection of the light coming from the Fresnel lens, this effect is automatically achieved. For the same reasons, the document D2 (see English abstract) which discloses an optical plate wherein a Fresnel structure is combined with triangular projections providing a diffusing effect, also anticipates the subject-matter of claim 16. Therefore, claim 10 does not fulfil the requirements of Article 33(2) PCT.

6. D3 is generally concerned with a method of producing a plate provided with an array of graded refractive lenses by means of a photopolymerisable material (see column 5, lines 32 to 40). D3 discloses by reference to figure 8 (see also column 13, lines 18 to 30) a plate wherein a Fresnel lens is combined with an array of graded refractive index lenses. The document D4 also discloses (see Figure 7) a plate wherein graded refractive lenses (16) are combined with a Fresnel lens. Each one of D3 and D4 anticipates the subject-matter of independent **claim 21**. Therefore, claim 21 does not fulfil the requirements of Article 33(2) PCT.
7. Dependent claims 2, 4 to 9, 11 to 15, 17 to 20, 22 to 28 do not appear to contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step since the additional features of these dependent claims are either disclosed by any of the above documents or are routine in the field of the liquid crystal display devices.
8. Some of the embodiments disclosed in the present application could serve as a basis for a new allowable claim. In particular the embodiments disclosed by reference to Figures 1a and 6, respectively are neither disclosed nor rendered obvious by the available prior art. However, it is noticed in this respect that, between these embodiments, no apparent common inventive concept exists which could serve as a basis for a single allowable independent claim.

Section VII

The features of the claims are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference I13397WO-H	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/GB 00/ 01858	International filing date (day/month/year) 15/05/2000	(Earliest) Priority Date (day/month/year) 14/05/1999
Applicant MICROSHARP CORPORATION LIMITED		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☒ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

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☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

P B 00/01858

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G03B21/62 G02B3/08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G03B G02B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 573 905 A (MINNESOTA MINING & MFG) 15 December 1993 (1993-12-15) column 4 -column 13; figures 1-6 ---	1,3,4
A	PATENT ABSTRACTS OF JAPAN vol. 006, no. 179 (P-142), 14 September 1982 (1982-09-14) & JP 57 094740 A (MATSUSHITA ELECTRIC IND CO LTD), 12 June 1982 (1982-06-12) abstract ---	1-4
X	US 5 442 482 A (JOHNSON WILLIAM N H ET AL) 15 August 1995 (1995-08-15) column 10 -column 19; figures 1-19 ---	10-25
X	US 5 751 387 A (FUKUHARA MOTOHIKO ET AL) 12 May 1998 (1998-05-12) column 5 -column 9; figures 1-21 -----	16-25

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

7 August 2000

Date of mailing of the international search report

11/08/2000

Name and mailing address of the ISA

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Authorized officer

Boeykens, J

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

P B 00/01858

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0573905	A	15-12-1993	JP 6051399 A	25-02-1994
JP 57094740	A	12-06-1982	NONE	
US 5442482	A	15-08-1995	AT 155897 T	15-08-1997
			AU 7881291 A	10-12-1991
			DE 69126975 D	28-08-1997
			DE 69126975 T	27-11-1997
			EP 0530269 A	10-03-1993
			WO 9118304 A	28-11-1991
			JP 5509416 T	22-12-1993
US 5751387	A	12-05-1998	FR 2737595 A	07-02-1997
			FR 2737581 A	07-02-1997

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner
 US Department of Commerce
 United States Patent and Trademark
 Office, PCT
 2011 South Clark Place Room
 CP2/5C24
 Arlington, VA 22202
 ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 23 January 2001 (23.01.01)	Applicant's or agent's file reference I13397WO-H
International application No. PCT/GB00/01858	Priority date (day/month/year) 14 May 1999 (14.05.99)
International filing date (day/month/year) 15 May 2000 (15.05.00)	
Applicant FAIRHURST, Alison, Mary et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:

11 December 2000 (11.12.00)

☐ in a notice effecting later election filed with the International Bureau on:2. The election ☒ was☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer Pascal Piriou
Facsimile No.: (41-22) 740.14.35	Telephone No.: (41-22) 338.83.38